

**ADC WITH REDUCED QUANTIZATION NOISE AND
PROGRAMMABLE BIT RESOLUTION**

Anatoliy V. Tsyrganovich

ABSTRACT OF THE DISCLOSURE

An improved sigma-delta converter includes a post converter filter portion that receives digital data streams. The post converter filter portion is programmable to receive digital data streams of varying bit widths. The data streams have digital amplitudes and contain quantization noise. Quantization noise is larger for digital amplitudes in a second larger-amplitude range than in a first smaller-amplitude range. The post converter filter has a higher cut-off frequency when the digital amplitude is in the first amplitude range and a lower cut-off frequency when the digital amplitude is in the second amplitude range. The post converter filter therefore filters out a portion of the larger quantization noise when the digital amplitude is larger. Quantization noise is reduced without limiting the input signal voltage range that can be digitized.